United States Department of Agriculture
NRCS Natural Resources Conservation Service

Erosion and Sediment Control During Construction at Animal Feeding Operations

Alabama Guide Sheet No. AL 313D

DEFINITION

Construction at an animal feeding operation (AFO) can result in significant sediment loads entering a stream system if the proper erosion and sediment control techniques and construction sequences are not utilized during construction.

AFO's with construction ground disturbances of 1 acre or more must either have an Alabama Department of Environmental Management (ADEM) National Pollutant Discharge Elimination System (NPDES) stormwater registration or be registered as a concentrated animal feeding operation (CAFO) with ADEM until construction is complete. In either case, an erosion and sediment control plan (ESCP) must be developed prior to any ground disturbance and be fully implemented as needed for the duration of the construction activities. Ground disturbances usually include building pads, adjacent borrow areas, liquid waste storage structures, roads, etc. In order to develop an ESCP, the qualified credentialed professional (QCP) must be provided a grading plan by the owner/operator or the contractor prior to any land disturbances. The development and implementation of a quality ESCP will require good communication and coordination between the property owner, contractor and the QCP. The ESCP shall be certified by the QCP who will also certify compliance during construction and after construction is complete.

EROSION AND SEDIMENT CONTROL PRINCIPLES

Disturb the least amount of land for the least amount of time. The construction ground disturbance activities should not begin until such time that it is possible to complete the construction with a minimum of delay. That is, the site should not be disturbed and then lay idle for an extended period while the contractor completes other jobs or waits for seasonally bad weather to end. Ideally, construction should be done during periods with the least amount of rain in order to minimize construction time. This is generally during late summer and early fall. The contractor should also devote all efforts needed to complete all ground disturbances and stabilize the area as quickly as possible while meeting the construction specifications for the job.

Whenever possible, house pads should be completed one at the time and the slopes stabilized with seeding and mulching before the next pad is constructed. Also, the borrow area should only be expanded as additional earth fill material is required.

Control sediment. Prior to any ground disturbance, the areas where runoff water will leave the site must be determined from the site grading plan and be protected from erosion by installing any needed sediment control measures. Erosion on the site that results in concentrated sediment laden runoff must be captured in a sediment detention structure. Structures may include silt fences, hay bale barriers, rock dams, grass filter strips, or sediment basins.

Borrow areas should be constructed to collect and retain runoff water in an area where borrowing has been completed rather than allowing the sediment-laden water to leave the site. Borrow areas and house pad sites that allow runoff to bypass the outfall sediment control structures should have silt fence barriers installed to control sediment.

Cleared brush and trees can be placed in tightly packed windrows across the slope to serve as sediment barriers. The windrows should be removed as one of the last items of construction just prior to final vegetation.

Divert clean water. Clean runoff water that would normally enter the work area from an upstream drainage area should remain clean. This can be accomplished by using diversions to divert clean runoff water from any disturbed areas like the building pad or borrow area.

Stop sediment at its source. Soil particles dislodged and moved by water can be very difficult to control. It is much easier to control erosion – the forces that dislodge the soil particles. Any areas that have bare soil exposed to direct rainfall have the potential to erode and cause sediment movement. Soil that is exposed for periods of 2 weeks or more without on-going construction are required by ADEM to be protected from possible erosion. One of the most cost-effective methods is to cover the exposed areas with mulch at a rate of 3 tons/acre. However, the mulch must be removed or recycled when construction resumes.

Establish permanent vegetation. As soon as the final grading is completed for a house pad or other structure, the area should be vegetated according to Alabama NRCS Conservation Practice Standard, Critical Area Planting – Code 342. Temporary seeding and/or mulching may be required until permanent seeding dates can be met. Provide a good seedbed, fertilizer, lime, and mulch on all the areas being vegetated.

OPERATION AND MAINTENANCE

Erosion and sediment control practices must be properly installed, operated, and maintained in order to be effective. Practices must be inspected by the QCP at least monthly and after every rain event of more than ¾ inch. Erosion that does occur should be promptly corrected. Sediment accumulations in silt fences or sediment basins must be removed to provide original design capacity and properly spread in locations to be seeded. Additional practices may be needed if those installed originally are not effective.

CONSTRUCTION SEQUENCE

While each AFO construction site may differ, the general sequence of construction to control erosion and sediment is as follows:

1. Hire or obtain the services of a QCP.
2. If disturbing 1 acre or greater, register for construction stormwater NPDES permit coverage directly with ADEM with the assistance of your QCP, or register as a CAFO through your county Soil and Water Conservation District (SWCD) office until construction is complete.
3. The QCP will examine the site grading plan prior to construction to determine final slopes and grades, locations of concentrated runoff outfalls, and other areas where sediment control structures may be needed.
4. An ESCP will be developed by the QCP.
5. Install sediment control structures for proper detention of runoff water at the outfall for the site.
6. Properly install sediment control barriers (silt fences, hay bales, etc.) where necessary.
7. Construct diversions as needed to keep outside runoff water clean. Seed and mulch diversions.
8. Clear the work area for the first pad or area to be constructed. As needed, place brush windrows as sediment barriers on the contour below cleared areas.
9. Expose a small borrow area while controlling potential sediment from leaving the site.
10. Complete construction for the first pad or area. Expose more borrow area only as more earth fill is required.
11. Install planned runoff control measures such as grassed swales, lined swales, riprap lined swales, and diversions to control erosion and sediment within the site.
12. Maintain all silt fences, brush windrows, and sediment control structures. Remove and/or spread silt accumulations.
13. Vegetate the site with the exception of the building pad.
14. Close and stabilize borrow areas with vegetation as soon as possible.
15. Inspect vegetation and make repairs as needed after rain events.
16. Begin construction of next pad or area utilizing the same sequence.
17. After buildings are constructed make final repairs to vegetation.
18. After conclusion of all construction activities, remove sediment control structures and stabilize the area.
19. The QCP will certify that the ESCP has been completed and all disturbed areas stabilized at a suitable level of erosion prevention.

REFERENCES

NRCS AL Conservation Practice Standard
Critical Area Planting – Code 342

Alabama Handbook for Erosion Control, Sediment Control and Stormwater Management on Construction Sites and Urban Areas, as amended

ADEM Administrative Code Chapter 335-6-12
(Construction Stormwater Management)